

Plugged and Unplugged Computing in Early Elementary Education

Lynn Howard is a 3rd grade teacher at the Murphy School in Weymouth Public Schools and is passionate about STEM education. She understands the importance of introducing STEM concepts in early elementary education programs and has created a computer science afterschool program for girls and boys in grades 1-4 as part of the Murphy School after school enrichment program.

Along with many teachers in the Weymouth Public Schools, Ms. Howard ensured that her students participated in the Hour of Code, a one-hour introduction designed to demystify computer science and show that anybody can learn the basics. Launched in 2013, Code.org is a non-profit dedicated to expanding participation in computer science for every student. She took a one day course through Code.org. As a participant, she received access to a curriculum unit on computer programming. Some of the lessons are "unplugged" activities, lessons in which students can learn computing concepts with or without a computer. The other lessons are online and give the students opportunities to explore and practice algorithmic thinking and problem solving.

Once a week, for 1.25 hours, Ms. Howard works with twenty-nine enthusiastic 6-9 year olds. Twenty-one 1st and 2nd graders meet on Fridays and eight 3rd and 4th graders meet on Mondays. Using tutorials from Hour of Code (<https://code.org>), she has developed a series of activities that expose students to meaningful computer science experiences. Students work alone or with a partner or a group, to write programs to solve puzzles, learn about how to debug a program, and use loops to describe actions that repeat a certain number of times. Students write algorithms for everyday tasks and discuss different problem-solving techniques as well as the societal impacts of computing.

“It is inspiring to work with educators like Lynn who learn new STEM skills to keep up with what students need to move ahead in the digital age.” notes Katherine Honey, Coordinator, SE MA STEM Network. “Lynn is an outstanding example of educators who are taking the time to learn STEM skills that they can then teach to their students. Along with creating computing courses for young learners, Ms. Howard works with Weymouth Public Schools and AAUW–South Shore Branch to offer a STEM conference for girls each April. She is also playing a pivotal role in providing an opportunity for girls ages 11-13 to participate in Envision the Future 2015 – a residential STEM program for girls that will be held July 20-24, 2015 at Bridgewater State University. Her dedication is appreciated and is a model for others who want to introduce STEM skills to early elementary students to increase the number of girls interested in pursuing STEM careers.”